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Federation Verification Tool

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Distributed Simulation Systems Group

Background

- The Federation Development phase of the FEDEP is supported by:
  - an Object Model Development Tool (OMDT) which can be used to create a Federation Object Model (FOM)
  - a Federation Execution Planners' Workbook (FEPW) tool to enable the specification of more detailed federation execution information such as object update rates
  - Together, these tools enable the federation developer to create a detailed *"contract of federation execution"* whose terms are described by the FED, OMT, and FEPW.
- FVT will verify whether the federation abides by the "contract of execution" as specified in these files.

Contract of Execution

- The Contract of Execution defines a set of “assertions” about the Federation
- FVT will use the information in a federation’s FED, OMT, and FEPW files to verify the assertions:
  - Set Verification
    - » E.g., Does the set of object attributes that the federate updates or subscribes to match what’s specified in the FEPW file?
  - Capability Verification
    - » E.g., Is the class published and/or subscribed to in a manner consistent with the OMT file’s “publishable/subscribable capabilities” value?
  - Performance Verification
    - » E.g., Is the observed update frequency of the attribute consistent with the OMT file’s “update type” and “update condition” values?

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Use Cases

- FVT can be used to assist federation developers during the Federation Integration and Test process:
  - Application Testing: Verify federates can generate the objects and interactions it is responsible for in the Federation
    - » Ensure federate produces the correct service sequences, with appropriate content, and that semantic content of services is consistent and complies with the FOM.
    - » Integration Testing: Examines how one federate interacts with another federate
    - » Verify data exchanged by the Federation, as specified in its FOM, is correct.
  - Federation Execution Monitoring: Monitor information in the FOM, FEPW, and FED
    - » Notify user of parameters such as subscription and publication lists and number of times a specific interaction occurred.

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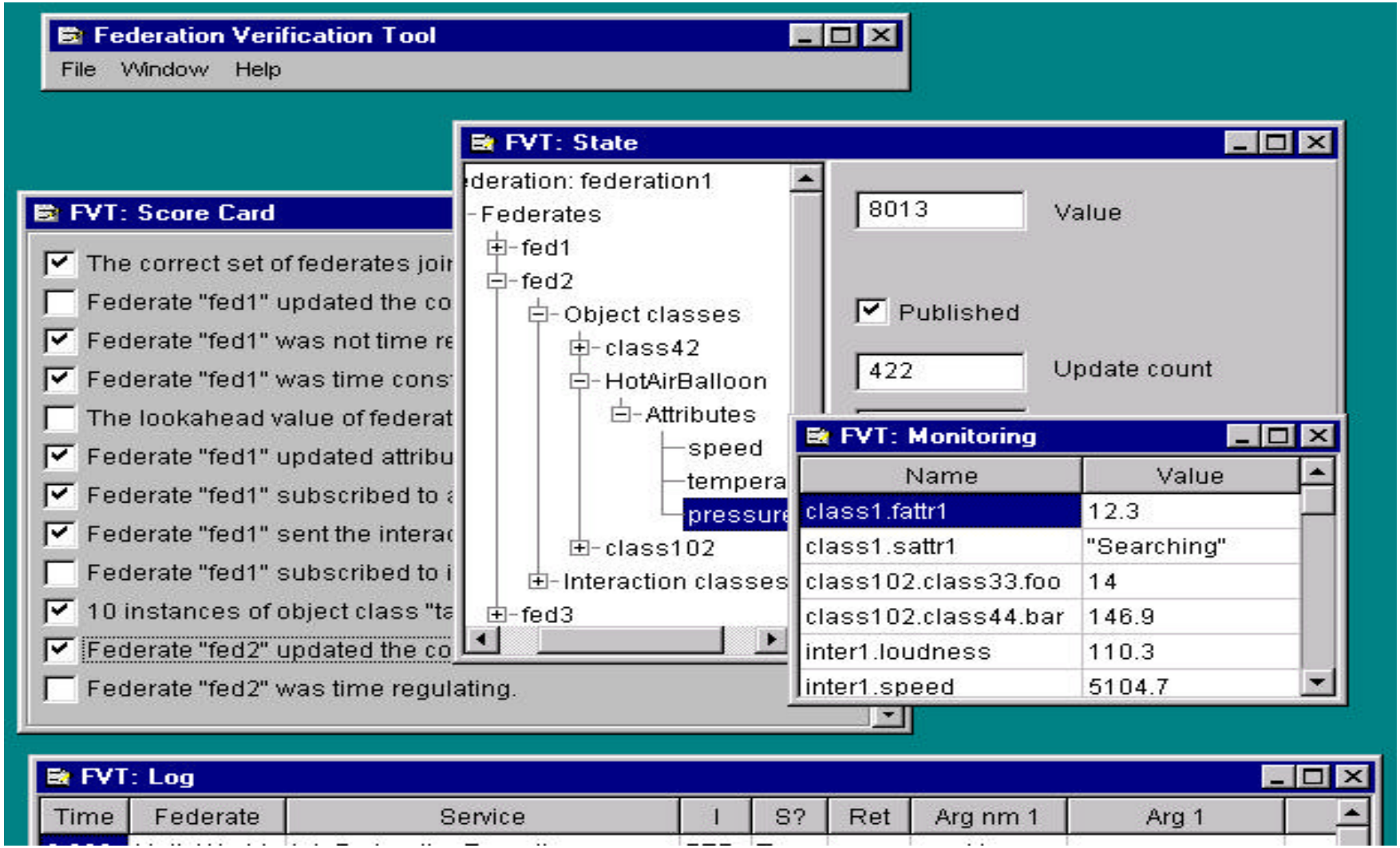
FVT Views



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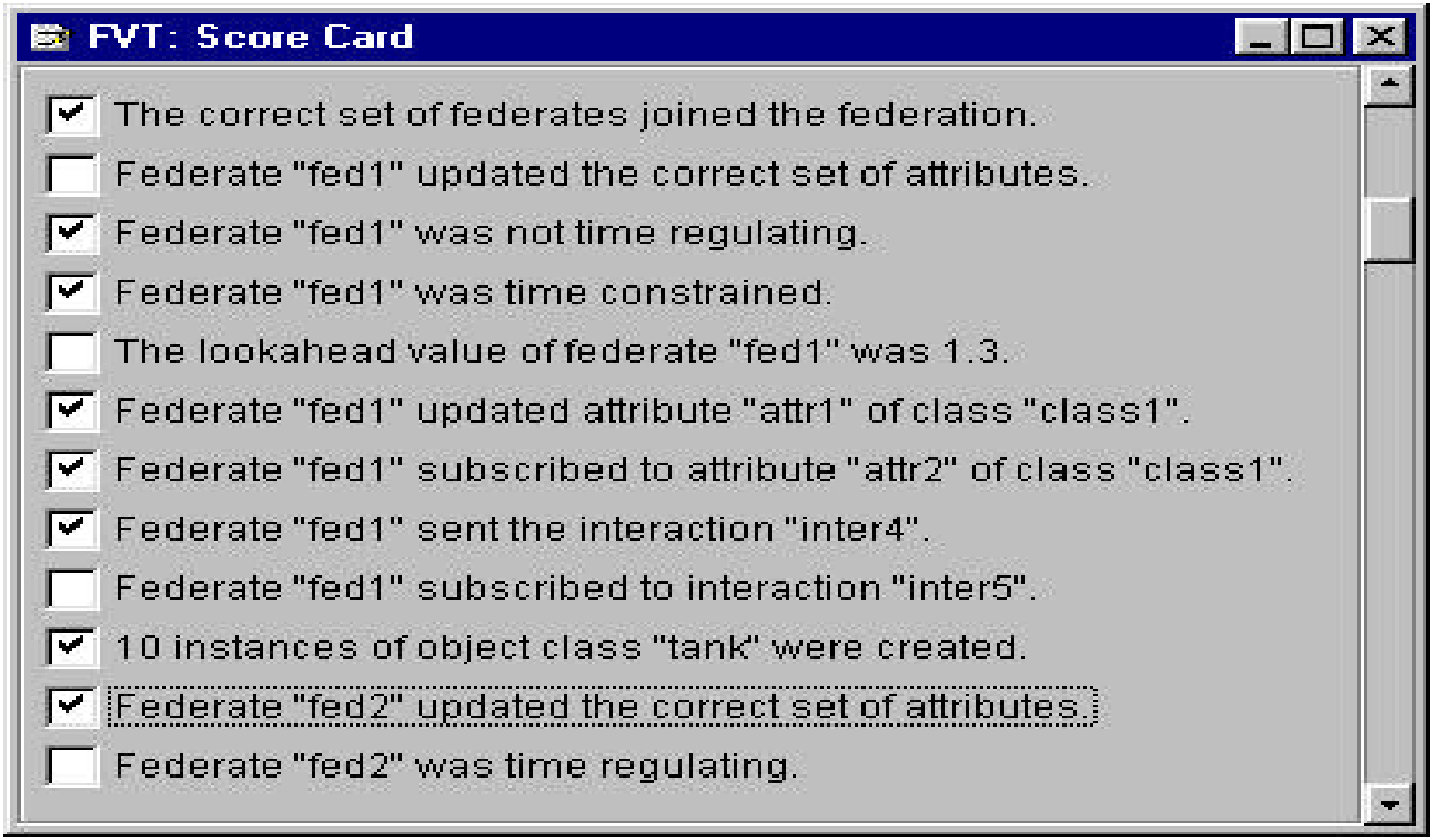
FVT Score Card



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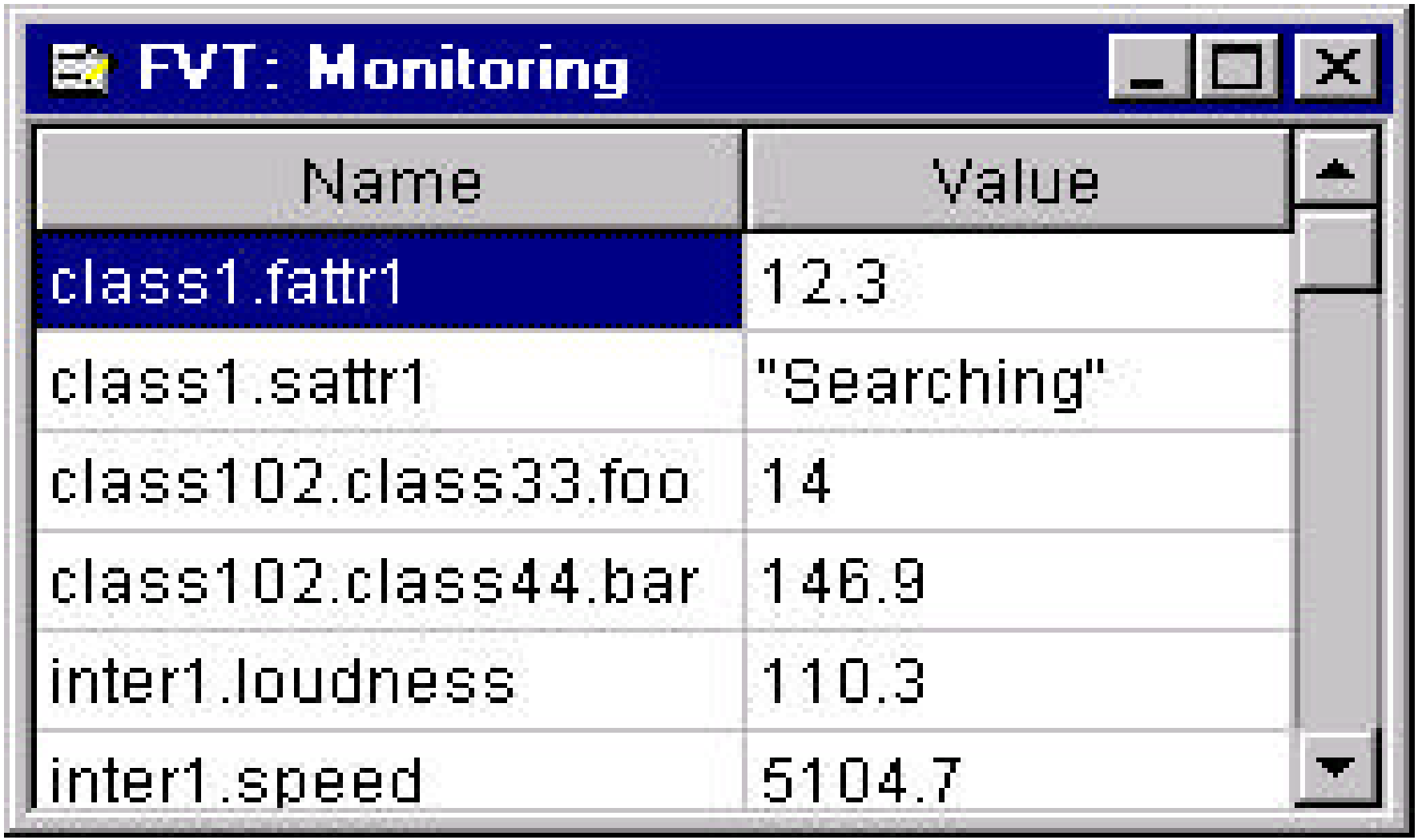
FVT Monitoring



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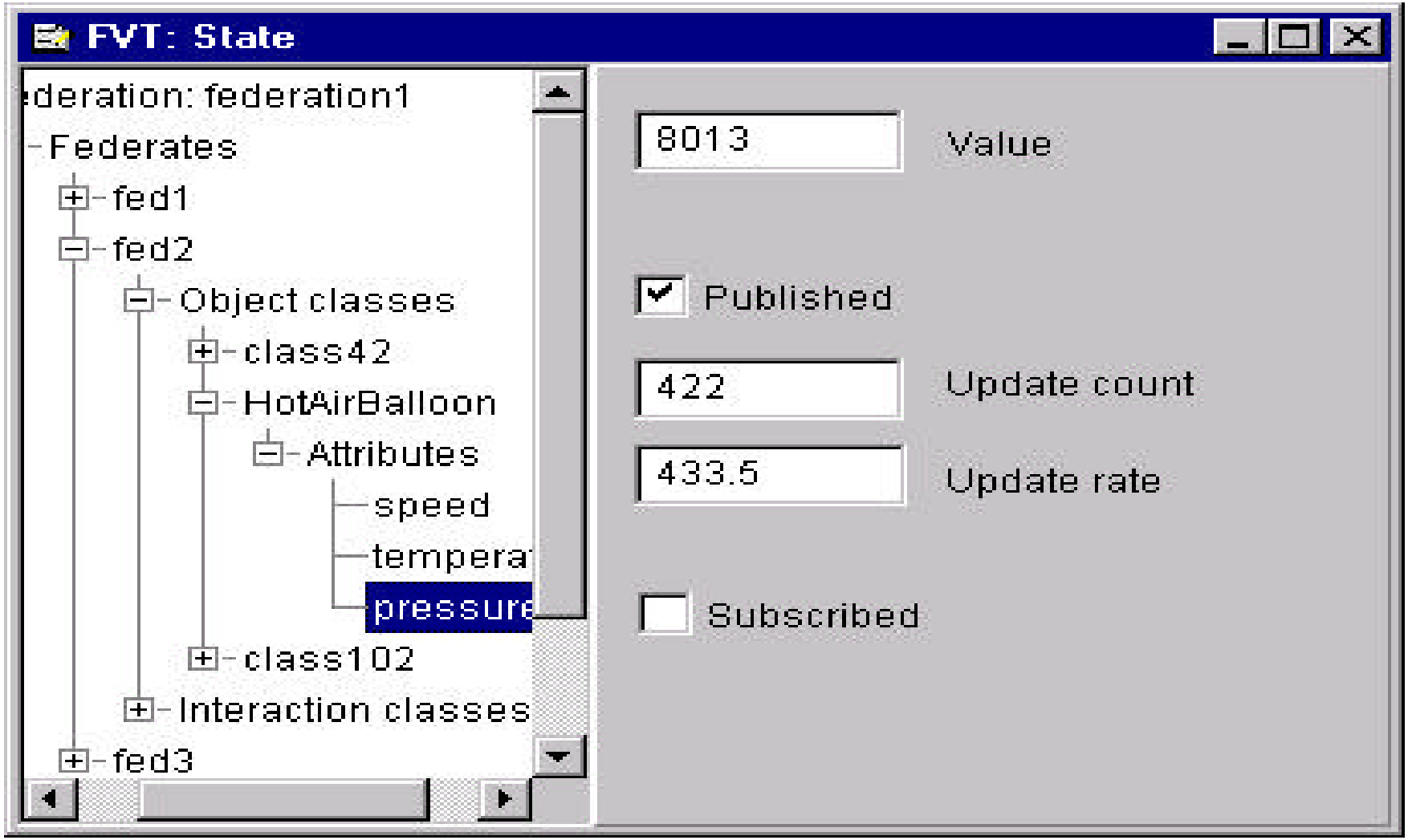
FVT Tree



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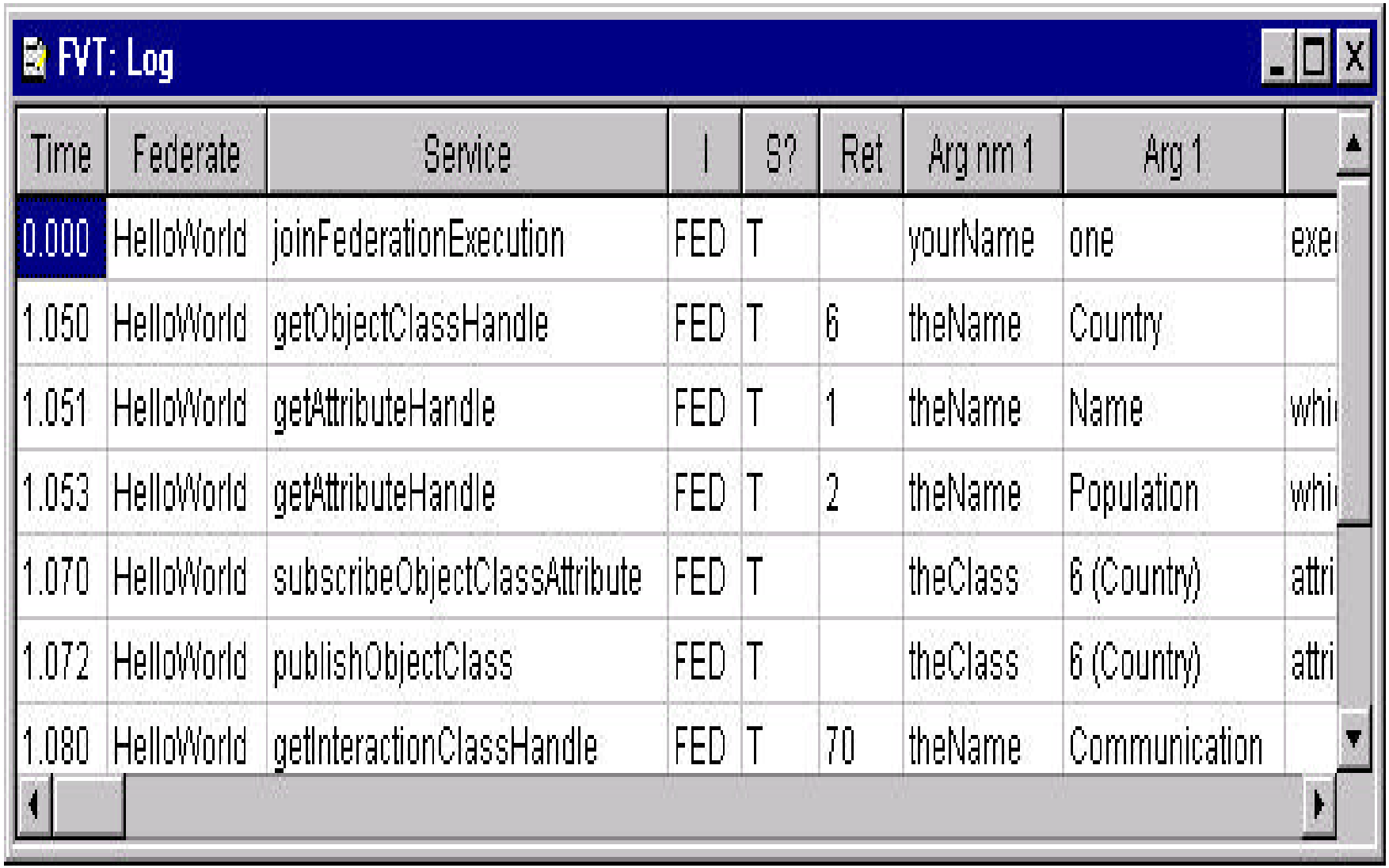
FVT Log



Time	Federate	Service	I	S?	Ret	Arg nm 1	Arg 1	
0.000	HelloWorld	joinFederationExecution	FED	T		yourName	one	exe
1.050	HelloWorld	getObjectClassHandle	FED	T	6	theName	Country	
1.051	HelloWorld	getAttributeHandle	FED	T	1	theName	Name	whi
1.053	HelloWorld	getAttributeHandle	FED	T	2	theName	Population	whi
1.070	HelloWorld	subscribeObjectClassAttribute	FED	T		theClass	6 (Country)	attri
1.072	HelloWorld	publishObjectClass	FED	T		theClass	6 (Country)	attri
1.080	HelloWorld	getInteractionClassHandle	FED	T	70	theName	Communication	